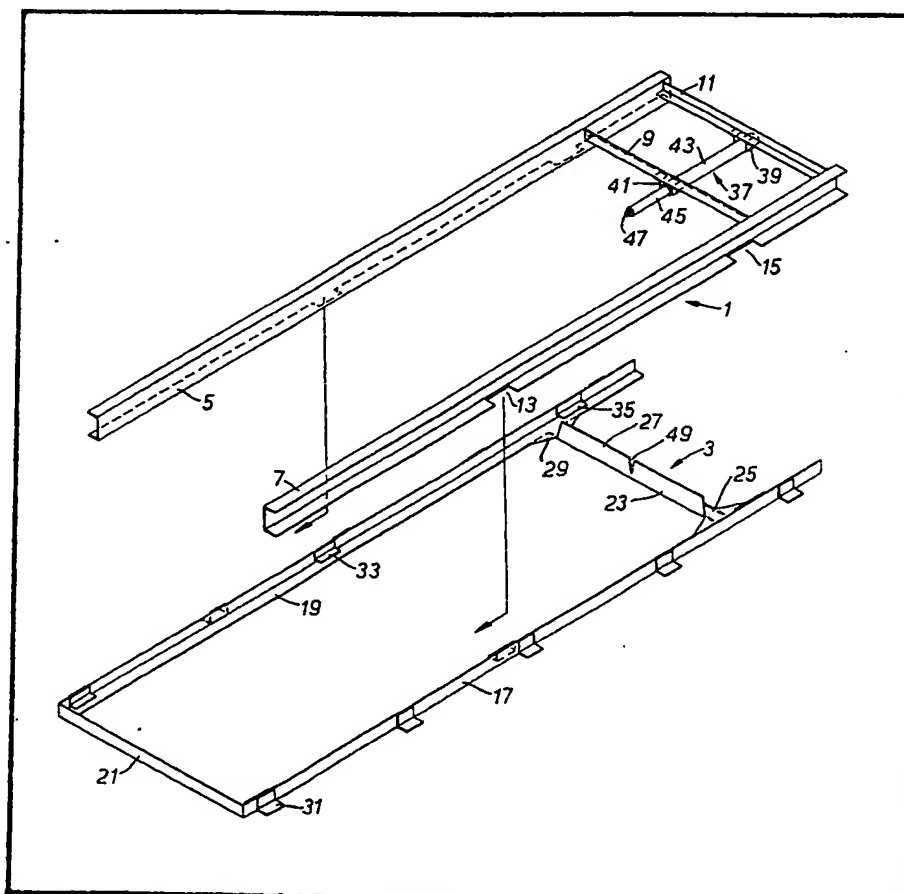


- ## (54) · Releasably Connecting a Superstructure to a Substructure

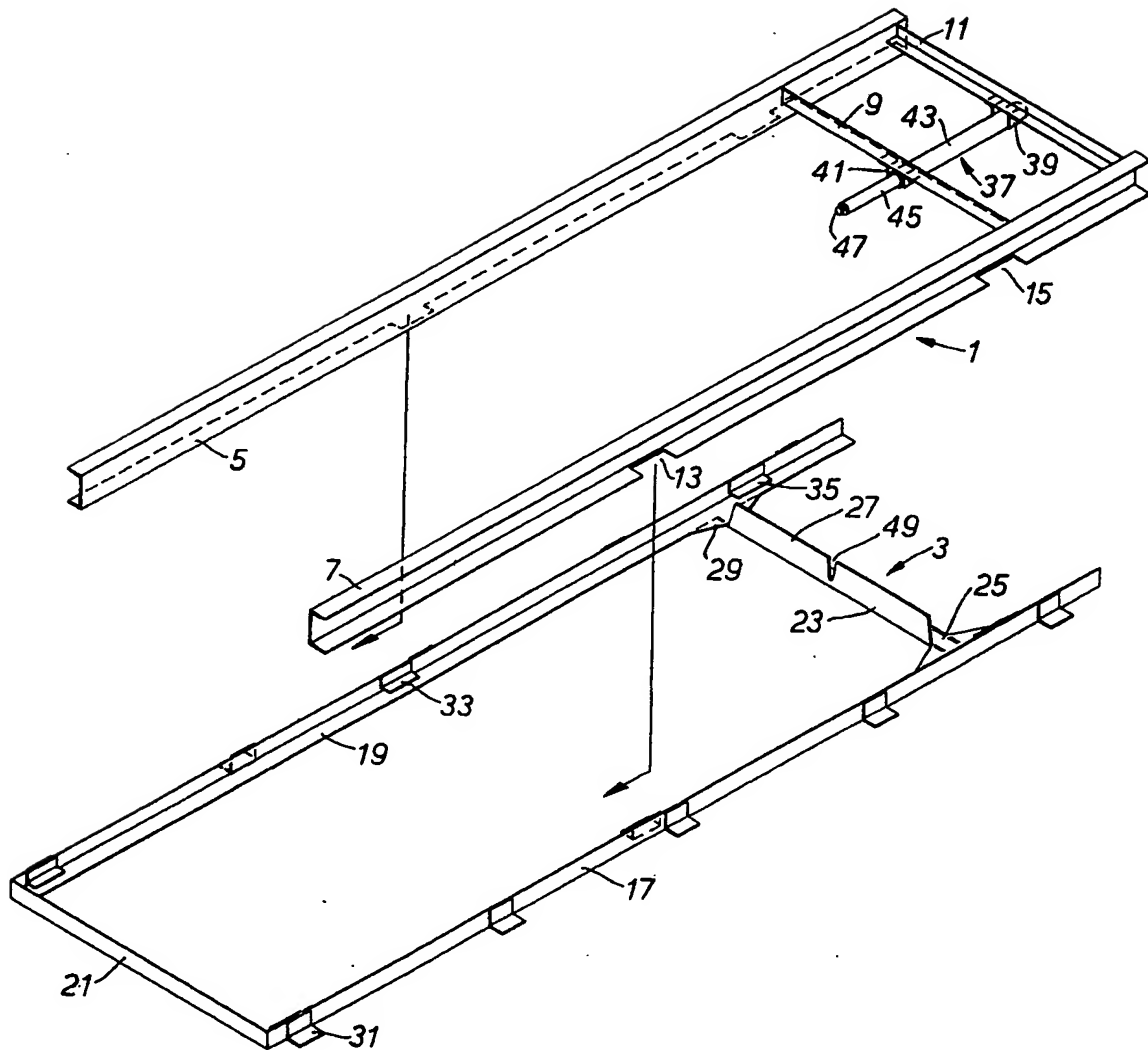
(57) A device for releasably connecting together a superstructure to a substructure comprises a body member 1 for attachment to the underside of a vehicle body and a chassis member 3 for attachment to a vehicle chassis. The two members are adapted to be connected together by means of a first relative movement of

the two members towards each other while said members are in a particular lateral alignment with respect to each other and a second relative movement in a direction substantially at right angles to the first movement. The members are provided with means 37 for effecting said second relative movement and for maintaining the members in their relative positions achieved as a result of the relative movements.



The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy

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SPECIFICATION

Locking Device

This invention relates to locking devices and in particular to devices for releasably connecting together a superstructure to a substructure, an example being a vehicle body to a chassis in the case where it is desired that the vehicle body should be relatively easily removable from the chassis. At present the normal practice is for a vehicle body to be permanently attached to a chassis or, in the few cases where a detachable connection is provided for, the system is rather complicated and expensive. There is a need for a simple and inexpensive system of connecting and locking together a superstructure such as a vehicle body to a substructure such as a chassis, the system being such that the superstructure may be easily removed and replaced by a different superstructure. For instance, a single vehicle chassis may then be provided with a plurality of vehicle bodies, examples being catering units, so-called caravanette units, a Luton van body, a pick-up body and a milk float body.

According to the present invention there is provided a device for releasably connecting together a superstructure to a substructure, the device comprising a superstructure member for attachment to the superstructure and a substructure member for attachment to the substructure, the two members being adapted to be connected together by means of a first relative movement of the two members towards each other while said members are in a particular lateral alignment with respect to each other and a second relative movement in a direction substantially at right angles to the first movement, the members being provided with means for effecting said second relative movement and for maintaining the members in their relative positions achieved as a result of said relative movements.

Preferably the members have surfaces which are adapted to slide over each other and the first relative movement brings these surfaces into contact with each other. The second relative movement then involves the sliding of one member relative to the other. Preferably the members are provided with respective alignment portions which must be aligned in order that the first relative movement can be completed.

Preferably the superstructure member is provided with the means for effecting said relative movement, these means being in the form of a jack or ram arrangement having two relatively movable elements, the first element being rigidly connected to the superstructure member and the second element being relatively movable thereto. The second element may be connected to the substructure member so that relative movements between the two elements causes relative movements of the superstructure and substructure members. Preferably the second element is arranged so as to become automatically connected to the substructure

member as a result of the completion of the first relative movement between the superstructure and substructure members.

A device in accordance with the present invention may also include items such as jacks for effecting the first relative movement of the superstructure and substructure members. For instance, these jacks may be connectable to the superstructure, in the form of a vehicle body, to allow the vehicle body to be lowered onto the substructure member which is fixed to the vehicle chassis.

Within the scope of the present invention is a vehicle incorporating the connecting device of the invention.

An embodiment of the present invention will now be described, by way of example only, and with reference to the accompanying drawing which is a perspective view of a device in accordance with the present invention.

Referring to the drawing, a device in accordance with the present invention is shown which enables a vehicle body to be releasably mounted on a vehicle chassis. The device includes a body member 1 which is intended to be bolted or welded to the underside of the vehicle body and a chassis member 3 which may be bolted or welded to the vehicle chassis.

Body member 1 comprises two channel sections 5 and 7 made of metal and interconnected by transverse members 9 and 11 so as to be in parallel with each other. Transverse members 9 and 11 interconnect sections 5 and 7 at positions near one end of each of these sections and each member 9 and 11 has an L-shaped cross-section.

Channel sections 5 and 7 are each provided with two cut-out portions 13 and 15 which are provided in one arm of the section 5 or 7.

The chassis member 3 comprises two L-section members 17 and 19 interconnected at one end thereof by transverse L-section 21 and a short distance from the other ends thereof by L-section 23. L-section 23 includes a base portion 25 which extends the full length between members 17 and 19 and an upright portion 27 which only extends to a position just short of the appropriate members 17 and 19 at each end thereof. Strengthening triangular portions 29 are provided at the positions of connection between section 23 and members 17 and 19.

Welded to the outside of each of members 17 and 19 are L-section lugs 31. These are provided to enable chassis member 3 to be bolted or welded to a vehicle chassis.

Each of members 17 and 19 is also provided with two further L-section lugs 33 and 35 which are welded to the inside of members 17 and 19. The positioning of these lugs corresponds to the positioning of cut-out portions 13 and 15 on body member 1, as will be made clear below.

The device further includes an arrangement for effecting relative movement between body member 1 and chassis member 3. This arrangement comprises a jack mechanism 37

which extends between and is connected to the underside of transverse sections 9 and 11 of body member 1 by means of brackets 39 and 41. This jack mechanism includes an outer tubular member 43 rigidly secured to brackets 39 and 41 and an inner cylindrical member 45, the two members 43 and 45 being in screw-threaded engagement with each other and being relatively movable by means of an appropriate turning device locatable on the end (not shown) of inner portion 45. The other end of inner portion 45 is provided with a short extension 47 having an enlarged head attached to tubular member 45 by a relatively narrow neck. The neck of extension 47 is, in use, located within a V-shaped cut-out 49 provided in upright portion 27 of section 23.

The above-described device may be used by bolting or welding chassis member 3 to a vehicle chassis and bolting or welding body member 1 to a vehicle body. In order to connect together the vehicle member to the vehicle chassis, the body is held by means of jacks (not shown) at a position vertically above the vehicle chassis. Typically four jacks would be used and they would have arms which locate in holes provided in the vehicle body. The vehicle body is then lowered onto the chassis, the cut-out portions 13 and 15 of body member 1 being aligned vertically with lugs 33 and 35 of chassis member 3. This enables the vehicle body to be lowered to a position at which the lower surfaces of members 5 and 7 rest upon the upper surfaces of the horizontal portions of sections 17 and 19. When this downward movement has been completed the neck of extension 47 of jack mechanism 37 is located within V-shaped cut-out 49 of transverse section 23.

At the completion of this downward movement the body of member 1, and the vehicle body to which it is connected, is offset rearwardly with respect to chassis member 3 and the vehicle chassis to which it is connected. The jack mechanism 37 is then utilised in order to complete the connection together of the vehicle body to the vehicle chassis. Thus by actuating the jack mechanism body member 1 is caused to slide in a direction towards section 21 of chassis member 3. This movement is continued until the ends of members 5 and 7 abut against the upright portion at section 21. In this position the body member 1 and chassis member 3 are held together against relative horizontal movement by means of the engagement of extension 47 of jack mechanism 37 within V-shaped cut-out 49 of section 23. They are also held together against relative vertical movement by means of lugs 33 and 35 overlying the lower horizontal flange of U-section members 5 and 7.

The vehicle body may be removed from the

vehicle chassis by means of a procedure which is the reverse of that described above.

Claims

1. A device for releasably connecting together a superstructure to a substructure, the device comprising a superstructure member for attachment to the superstructure and a substructure member for attachment to the substructure, the two members being adapted to be connected together by means of a first relative movement of the two members towards each other while said members are in a particular lateral alignment with respect to each other and a second relative movement in a direction substantially at right angles to the first movement, the members being provided with means for effecting said second relative movement and for maintaining the members in their relative positions achieved as a result of said relative movements.

2. A device according to claim 1 wherein the members have surfaces which are adapted to slide over each other and the first relative movement brings these surfaces into contact with each other.

3. A device according to claim 1 or claim 2 wherein the members are provided with respective alignment portions which must be aligned in order that the first relative movement can be completed.

4. A device according to any of the preceding claims wherein the superstructure member is provided with the means for effecting said relative movement, these means being in the form of a jack or ram arrangement having two relatively movable elements, the first element being rigidly connected to the superstructure member and the second element being relatively movable thereto.

5. A device according to claim 4 wherein the second element is arranged so as to become automatically connected to the substructure member as a result of the completion of the first relative movement between the superstructure and substructure members.

6. A device according to any of the preceding claims and including means for effecting the first relative movement of the superstructure and substructure members.

7. A device for releasably connecting together a superstructure to a substructure and substantially as described herein with reference to the accompanying drawing.

8. A device according to claim 1 and substantially as described herein with reference to the accompanying drawing.

9. A vehicle incorporating a device as claimed in any of the preceding claims.